



US006474006B1

(12) **United States Patent**
Cummings et al.

(10) Patent No.: **US 6,474,006 B1**
(45) Date of Patent: **Nov. 5, 2002**

(54) **STABILIZER ATHLETIC SHOES**

(76) Inventors: William G. Cummings, 336 Briarly
Dr., Franklin Lakes, NJ (US) 07417;
Jay G. Levine, 5 Walnut Cl., New City,
NY (US) 10956

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/617,732

(22) Filed: Jul. 17, 2000

(51) Int. Cl.⁷ A61F 5/14; A43B 7/14

(52) U.S. Cl. 36/142; 36/88; 36/25 R;
36/144

(58) Field of Search 36/25 R, 142,
36/143, 144, 103, 127, 88, 92

(56) **References Cited**

U.S. PATENT DOCUMENTS

211,017 A * 12/1878 Hughes et al. 36/69
912,862 A * 2/1909 Lendgren 36/69

2,179,942 A * 11/1939 Lyne 36/127
2,616,190 A * 11/1952 Darby 36/144
2,847,769 A * 8/1958 Schlesinger 36/127
3,218,734 A * 11/1965 O'Brien 36/127
4,073,075 A * 2/1978 O'Brien 36/127
4,118,034 A * 10/1978 O'Brien 36/127
4,402,146 A * 9/1983 Parracho et al. 36/129
4,484,397 A * 11/1984 Curley, Jr. 36/132
4,620,376 A * 11/1986 Talarico, II 36/103
4,685,227 A * 8/1987 Simmons 36/127
4,748,753 A * 6/1988 Ju 36/127
4,866,861 A * 9/1989 Noone 36/127
5,345,701 A * 9/1994 Smith 36/144
5,448,839 A * 9/1995 Blissett et al. 36/25 R

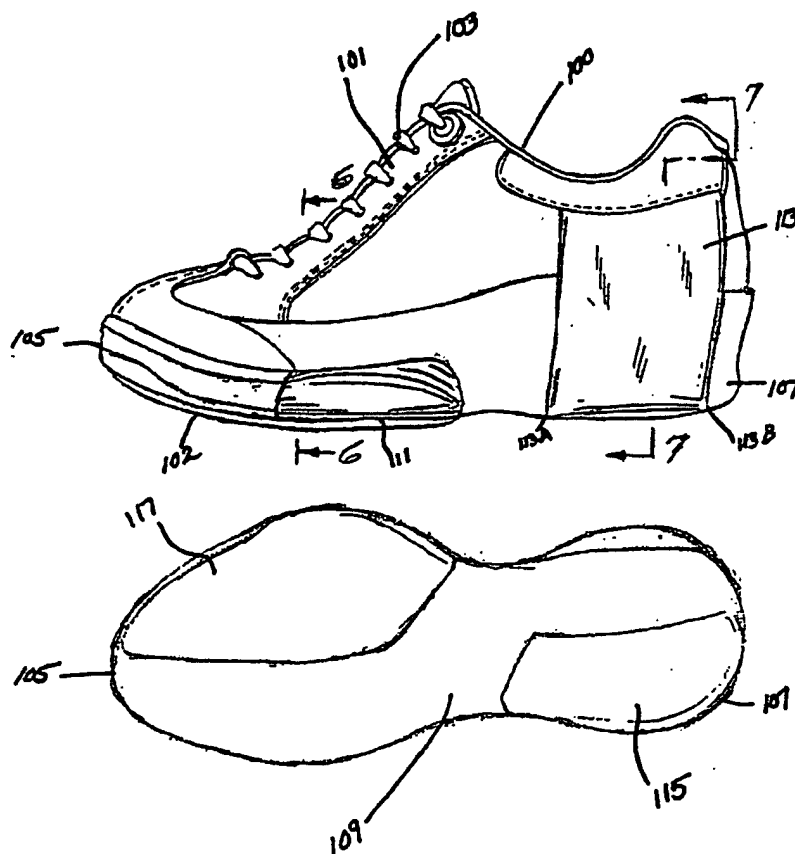
* cited by examiner

Primary Examiner—M. D. Patterson

(57) **ABSTRACT**

An athletic shoe is provided which contributes to dynamic stability of the shoe during several athletic activities. The athletic shoe comprises a tapered lateral wedge section and may further include a lateral heel stabilizer, a medial heel wedge and a tapered lateral forefoot section.

4 Claims, 3 Drawing Sheets



ALL-STATE LEGAL®

EXHIBIT

1

STABILIZER ATHLETIC SHOES

FIELD OF THE INVENTION

This invention relates generally to athletic shoes and particularly to stabilizer athletic shoes for persons engaged in athletic activities. More specifically, this invention relates to an improved athletic shoes construction which incorporate features designed to increase foot and ankle stability during various athletic activities in order to decrease muscle fatigue, enhance performance and minimize injuries.

BACKGROUND OF THE INVENTION

Various athletic shoes are presently being marketed for different activities such as running, tennis, basketball, racquetball and golf. These shoes are designed to prevent, or at least minimize injuries caused by lateral foot ankle instability during such activities. Current athletic shoes do not adequately guard against injuries caused by all type of athletic activities, including those activities which involve side-to-side jumping motions. These activities have greater tendency for lateral foot ankle instability, and hence injury to the foot and/or ankle.

U.S. Pat. No. 3,738,373, issued Jun. 12, 1973 describes an athletic shoe which incorporates a flexible wedge mounted therein which extends completely to the rear edge of the heel thereby providing maximum "cushion".

An earlier patent, U.S. Pat. No. 2,847,769, issued Aug. 19, 1958 discloses shoes for golfers which are designed to compel a golfer to automatically assume the correct golf stance.

Other athletic shoes incorporate air-cushioning means, usually in the heels, for absorbing the impact experienced during said activities.

So far as it is known, there is no single pair of athletic shoes which adequately affords the desired degree of protection and guards against injuries resulting from foot instability during athletic activities of the type hereinbefore mentioned. This is largely because the foot-ankle structure is complex and includes numerous joint axis with different movements and displacements in response to varying impacts and positions. Thus, the design of an athletic shoe which can protect against the different possible injuries resulting from a variety of athletic activities must take into consideration such factors as supination, pronation, dorsiflexion, plantarflexion, abduction, and adduction which occur at the foot-ankle joint during said sports activities. Accordingly, there is need for a single athletic shoe which is designed to afford maximum benefits for those engaged in various athletic activities in which foot-ankle injuries are matter of common experiences.

It is therefore an object of the present invention to provide an athletic shoe which is designed to afford maximum protection against injuries resulting from sports activities involving jumping and side-to-side motions such as, e.g., running, jogging, basketball, tennis and racquetball.

It is a further object of this invention to provide athletes with athletic shoes which incorporate features that counter the adverse effects of such factors as supination, pronation, dorsiflexion, plantarflexion, abduction and adduction experienced by athletes during several athletic activities.

The foregoing and other objects of this invention will become more apparent from the following detailed description and accompanying drawings.

SUMMARY OF THE INVENTION

In accordance with the present invention an athletic shoe is provided which, because of its unique construction,

assures dynamic foot stability, reduces lateral ankle instability and alleviate foot fatigue which often results from athletic activities such as jogging, running, tennis, basketball, jumping and even weight lifting exercises. In one embodiment, the athletic shoe comprises heel and a sole having a rear foot portion and a forefoot portion which has a medial section and a lateral section. The forefoot portion has a lateral wedge conformally affixed thereto or formed, integrally therewith, said lateral wedge member being tapered from the medial section toward the lateral mid portion of the forefoot.

In a second embodiment, the shoe is similar to the first embodiment and further includes a lateral heel stabilizer conformally attached to the heel counter, a medial heel wedge spanning the length and width of the shoe heel, and a tapered lateral forefoot member attached to the bottom sole of the shoe.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, wherein the same reference numerals in the different figures designate like parts:

FIG. 1 is a side elevational partly perspective view of an athletic shoe incorporating a lateral forefoot wedge in accordance with one embodiment of the present invention;

FIG. 2 is a bottom view of the shoe shown in FIG. 1;

FIG. 3 is a sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a side elevational, partly perspective view of an athletic shoe made according to another embodiment of this invention;

FIG. 5 is a bottom view of the shoe shown in FIG. 4;

FIG. 6 is a view taken along the line 6—6 of FIG. 4; and

FIG. 7 is a view taken along the line 7—7 of FIG. 4;

FIGS. 1-7 illustrate the left shoe, it being understood that the right shoe is similar in construction with the specific features being located on opposite side of the shoe.

DETAILED DESCRIPTION OF DIFFERENT EMBODIMENTS THE INVENTION

Referring to FIGS. 1-3, there is shown, in FIG. 1, a sport shoe 10 having a flexible top portion 11 mounted on top of the shoe sole 12 and is tied around the top portion 11 by the shoe lace 13. The sole 12 extends from the toe portion 15 to the heel portion 17 which may be rigid or semi-rigid in construction. The bottom or outsole 19 (see FIG. 2) may be ribbed, grooved or patterned as desired. For the purposes of use in some sports, the heel may be cushioned, or rendered resilient and capable of absorbing shocks upon impact by including air ducts, air pellets or spring means between the heel and the sole. Such constructions are well known in the prior art. For the purposes of this invention, in the embodiment shown in FIGS. 1-3, the shoe is provided with an external lateral forefoot stabilizer 21 which is formed as an integral part of the shoe conformally contouring the lateral forefoot portion of the shoe. The lateral forefoot stabilizer 21 is preferably about $\frac{1}{4}$ to about $\frac{1}{2}$ inch thick and is attached to the edge of the sole, with its thickness increasing gradually toward the lateral side where it is at its greatest thickness. The lateral forefoot stabilizer 21 extends a distance of from about 2 to about 4 inches, from the middle toward the toe portion 15, thus extending from the 5th toe proximal to the 5th metatarsal base. The lateral forefoot stabilizer 21 may be made of the same material used in forming the shoes, generally hard rubber, neoprene or a plastic, such as a copolymer of ethylene and vinyl acetate